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EXAMINER

DESIRE, GREGORY M

ART UNIT PAPER NUMBER

2625

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/457,003

Applicant(s)

HO ET AL.

Examiner

Gregory M. Desire

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### **DETAILED ACTION**

1. This action is responsive to communication filed 1/27/03.

#### ***Response to Amendment***

2. The examiner acknowledges the cancellation of claims 1-30 and the amended claims 31-65. Applicants arguments filed in view of the independent claims have been fully considered but they are not persuasive and are thus maintained. See response to arguments below.

#### ***Response to Arguments***

3. Applicant argues (on remarks page 10 lines 14-17) Darrell does not disclose the feature of testing the color of pixels of pixels of a color digital image using at least one image capture condition provided with the color digital image to determine those skin having predominantly skin color. It is the position of the examiner Darrell does disclose testing the color of pixels of pixels of a color digital image using at least one image capture condition provided with the color digital image to determine those skin having predominantly skin color (note col. 4 line 65- col. 5 line 25 and col. 7 lines 25-35). The input image is obtained from two camera images. The camera conditions are essential feature, since each camera contains different intensity and other values. Darrell uses a census algorithm technique to determine the similarities of

Art Unit: 2625

images. Once this is determined. Skin color are tested and detected from lookup tables previously computed from input values note col. 7 lines 23-24.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 31-35 and 51-65 are rejected under 35 U.S.C. 102(e) as being anticipated by Darrell et al. (6,188,777).

Regarding method, apparatus and computer medium claims 31, 35, 53, 54, 56, 60, 61 and 65 Darrell et al discloses,

Testing the color of the plurality of pixels (note col. 6 lines 62-66, color segmentation and detection examines color of the plurality of pixels) to determine those pixels having predominantly skin color (classification score wherein skin value is 1 and nonskin 0 and col. 7 line 11-20, region with value 1 is predominantly skin color), the testing utilizing at least one image capture condition provided with the color digital

Art Unit: 2625

image (note col. 4 line 65- col. 5 line 25 and col. 7 lines 25-35). The input image is obtained from two camera images. The camera conditions are essential feature, since each camera contains different intensity and other values. Darrell uses a census algorithm technique to determine the similarities of images. Once this is determined. Skin color are tested and detected from lookup tables previously computed from input values note col. 7 lines 23-24;

Subjecting only the pixels determined in said testing step having predominantly skin color to further facial feature analysis whereby those pixels not having predominantly skin color are not subjected to said further feature analysis (note col. 7 lines 44-48, skin color of target range is searched, thus restricting color regions outside the range.);

Regarding method and computer readable claims 32 and 62 Darrell discloses,

Wherein each image capture condition is acquired at a time said image is captured (note col. 10 lines 45-50).

Regarding method and computer readable claims 33 and 63 Darrell discloses,

Wherein the color digital image is encoded according to a predetermined format and the at least one image capture condition is represented as meta-data associated with the predetermined format (note col. 3 lines 18-35, computer system encodes digital image long term tracking of conditions occur).

Regarding method claim 36 Darrell et al discloses,

A color distribution model utilizing previous sampled data (note col. 7 lines 12-14, input data is used for model.)

Regarding method claims 37 and 38 Darrell et al discloses,

Wherein color distribution models are generated for different image capture conditions

Regarding method claim 51 Darrell et al discloses,

Wherein each of the plurality of pixels is determined to be predominantly skin color if more than a predetermined percentage of the total number of pixels in the one region are classified as being skin color (note col. 7 lines 50-53).

Regarding method claim 52 Darrell et al. discloses,

Wherein said regions are geometrically divided from said image (note fig. 2 block 210, computation segmentation)

Regarding method claims 53 and 54 Darrell et al discloses,

Wherein said regions are formed using a region growing method based upon difference color (note col. 8 lines 47-51, color range).

Regarding method claim 55 Darrell et al. discloses

Wherein the facial analysis is independent of facial color. (Note col. lines 18-22, face analysis is dependent on statistical appearance)

Regarding method claims 57 and 58 Darrell et al discloses,

Wherein each condition is acquired at a time said image is captured (note col. 10 lines 45-50, identification is based at time t).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 34, 36-38, 59, 42-50 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darrell in view of Schildkraut et al.

Darrell discloses a testing step. Darrell is silent disclosing a color distribution model.

However, Schildkraut does disclose a color distribution model (note col. 2 line 40-60).

RGB color sequence is converted to LST color space. The color distribution is used to build three-dimensional histogram (color distribution model).

Therefore it would have been obvious to one having ordinary skills in the art to include system for utilizing a color distribution in the system of Darrell as disclosed in Schildkraut because Darrell teaches testing of examining color pixels and Schildkraut in

Art Unit: 2625

the same field of endeavor discloses utilizing distribution model for a color space a step in overcome the problem of redeye.

Regarding method claims 37 and 38 Darrell and Schildkraut discloses,

Wherein the color distribution model is generated for a particular image capture device and condition (Schildkraut, note col. 2 lines 35-60). The color distribution model is generated for a particular LST code values, these values are proportional to the log of amount of exposure, the examiner interprets as a particular image capture condition from a device.

Regarding method claim 42 Darrell and Schildkraut discloses,

Wherein each color distribution model is represented as a frequency histogram of color representation vector (note Schildkraut, col. 2 lines 56-67, lines cite frequency histograms).

Regarding method claim 43 Darrell and Schildkraut discloses,

Wherein each color distribution model is represented as a probability distribution of color representation vector (note Schildkraut, col. 3 lines 22-25, Pskin probability distribution).

Regarding method claims 44 Darrell and Schildkraut discloses,



Wherein each color distribution model is represented as a binary map of color representation vectors (note Schildkraut, col. 3 lines 60-65, skin map value of 0 non skin, thus any non zero value is skin).

Regarding method claim 45 Darrell and Schildkraut discloses,

Wherein the color representation vectors are derived from perceptual color space values predetermined skin-color pixels in the previously sampled facial image data (note Schildkraut col. 2 lines 40-55 color image is converted to LST color space).

Regarding method claim 46 Darrell and Schildkraut discloses,

Wherein color representation vectors contain chromatic color values derived from those RGB values of predetermined skin color pixels in the previously sampled facial image data. (Note Schildkraut col. 2 lines 54-55 cite RGB chromatic color values).

Regarding method claim 47 Darrell and Schildkraut discloses,

Wherein the binary map comprises a percentage of the skin color pixels that were identified in the previously sampled facial image data (note Schildkraut col. 3 line 61- col. 4 line 13, lines cite skin map black/white of the image data).

Regarding method claim 48 Darrell and Schildkraut discloses,

Art Unit: 2625

Wherein one of said pixels is classified as being skin color if the color representation vector corresponding occurs within said binary map (note Schildkraut skin color is classified a binary value 1 col. 4 line 10).

Regarding method claim 49 and 50 Darrell et al discloses,

Wherein each of said pixels is classified as being skin color if the frequency and probability of the color representation vector corresponding thereto exceeds a predetermined threshold (note col. 3 lines 11-28, lines cite segmented, classifying images identify skin color regions from predetermine Tskin).

Regarding method, apparatus and computer readable claims, 34, 59 and 64 Darrell and Schildkraut discloses

Image capture condition comprises lighting conditions (note Schildkraut col. 1 lines 40-42) Lines cite an aspect of the invention is for illuminated images due to flash. Thus image capture conditions L, S, and T codes are based on illuminated conditions.

### ***Allowable Subject Matter***

5. Claims 39-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to disclose the distinct feature wherein the image capture

conditions comprises lighting conditions at the time the image was captured and separate color models are generated for different lighting conditions.

### ***Conclusion***


1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory M. Desire whose telephone number is (703) 308-9586. The examiner can normally be reached on M-F (8:30-6:00) Second Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 308-5937 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Gregory M. Desire  
Examiner  
Art Unit 2625

G.D.  
April 7, 2003

  
**BHAVESH M. MEHTA**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**